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Economic Forecasts and the Budget

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Economic Forecasts and the Budget

Summary

Outlays, revenues, and the federal budget surplus (or deficit) for a given year depend on both economic performance and fiscal policy. (The budget surplus is outlays minus revenues for a given fiscal year. The deficit is simply a negative surplus.) Slower economic growth means lower incomes and tax receipts, which tend to reduce a federal budget surplus or increase a budget deficit. Slower growth also means increased outlays for income support programs, which tends to reduce a federal budget surplus or increase a budget deficit. Faster economic growth means higher tax receipts and lower outlays, raising a federal budget surplus or decreasing a deficit.

Early each year, the Office of Management and Budget (OMB) and the Congressional Budget Office (CBO) release economic forecasts for the coming year, as required by law. These releases are coincidental with the release of the President's proposed budget for the coming fiscal year. Projections of revenues, outlays, and the federal budget surplus (or deficit) are based, in part, on these economic forecasts.

Numerous measures can be used to determine the relative accuracy of an economic forecast and assess whether a particular forecaster's projections tend to be optimistic or pessimistic. These measures are "mean error," "mean absolute error," and "root mean squared error."

This report uses these "summary measures of error" to assess the forecasting records of OMB, CBO, and the Blue Chip consensus forecast between 1982 and 2007. The Blue Chip forecast was selected as representative of private forecasters because, as a consensus, or average, forecast, it would be at least as accurate as about half of the 50 or so forecasts that go into it. The economic variables that are examined here are real GDP growth, consumer price inflation, the unemployment rate, and short-term interest rates.

With respect to the accuracy of past economic forecasts, no one forecaster examined here emerged as more reliable or more accurate than the others. Neither does there appear to be any significant pattern of excessive optimism or pessimism in any of the forecasts.

Future forecasts will undoubtedly continue to be characterized by errors. Revenue projections, for example, will turn out to have been too high one year or too low in another. Over the longer run, however, the evidence suggests that there is no statistically significant bias in forecast errors. Future surpluses, or deficits, may turn out to be higher or lower than expected because of imperfect economic forecasts. But, forecast errors are not likely to be a factor in longer run budget trends. This report will be updated as economic developments warrant.

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Outlays, revenues, and the federal budget surplus (or deficit) for a given year depend on both economic performance and fiscal policy. (The budget surplus is revenues minus outlays for a given fiscal year. A deficit is simply a negative surplus.) Slower economic growth means lower incomes and tax receipts, which tend to reduce a federal budget surplus or increase a budget deficit. Slower growth also means increased outlays for income support programs, which tends to reduce a federal budget surplus or increase a budget deficit. Faster economic growth means higher tax receipts and lower outlays, raising a federal budget surplus or reducing a deficit. Policy decisions made on the basis of optimistic projections may have to be adjusted down the road if and when those projections are not realized. If forecasts of economic growth are persistently optimistic, then projections of budget surpluses will tend to be too high.

Introduction

Early each year, the Office of Management and Budget (OMB) and the Congressional Budget Office (CBO) release economic forecasts for the coming year, as required by law.[1] These releases are coincidental with the release of the President's proposed budget for the coming fiscal year, as required by law. Projections of revenues, outlays, and the federal budget surplus (or deficit) are based, in part, on these economic forecasts.

Given the current state of the art, economic forecasts will err. But, whether a forecaster tends to be overly optimistic or pessimistic cannot be determined on the basis of a single year's forecast. This report examines and compares the accuracy of past OMB economic forecasts with those of CBO, as well as those of a third private forecast, the *Blue Chip Economic Indicators*.[2] The Blue Chip (BC) forecast is an

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[1] Section 202(f) of the Congressional Budget Act of 1974 requires CBO to produce baseline projections of the federal budget. Title 31, Section 1105 of the *U.S. Code* specifies the requirements of the President's budget proposal. OMB and CBO both also release a second forecast in the summer. The most recent OMB forecast can be found on the Internet at [http://www.whitehouse.gov/omb/]. The most recent CBO forecast can be found at [http://www.cbo.gov/].

[2] The *Blue Chip Economic Indicators* are available by private subscription. It is published by Aspen Publishers Inc. of New York City.

average of about 50 private forecasts.[3] Because it is a consensus forecast, it is a good standard for assessing the accuracy of the OMB and CBO forecasts.[4]

Economic forecasts are used to make budget projections, but those budget projections depend not just on economic forecasts, but also on assumptions regarding future tax and spending policy. Economic forecasts and related budget projections are interdependent.[5] Just as budget projections are based on assumptions about the economic outlook, changes in budget policy can have an effect on the economic outlook. OMB and CBO deal with this interdependence in slightly different ways. OMB's economic projections assume that the budget is enacted as it is introduced. CBO's economic projections are based on a *current services* budget, which assumes that tax and spending policies remain unchanged throughout the forecast. This difference in approach may explain some of the differences between OMB and CBO forecasts shown below.[6]

Summary Measures of Forecast Error

Three "summary measures of error" can be used to examine economic forecasting records.[7] The first is "mean error." Mean error is simply the average of all of the forecast errors.[8] A large positive (negative) mean error would indicate a tendency for forecasts of a given variable to be too high (low). A significantly large mean error, either positive or negative, might indicate a propensity towards overly optimistic or pessimistic forecasts, depending on the particular variable. A small mean error can be misleading, however, because large negative errors may be offset by equally large positive errors.

The second measure of forecasting error is "mean absolute error." Mean absolute error is the average of the absolute value of all of the forecasting errors. It measures how far off a forecast was regardless of whether it was too high or too low. Taking the absolute value eliminates the problem of negative and positive errors offsetting each other.

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[3] Individual contributors to the Blue Chip forecast change from time to time.

[4] For a detailed discussion of the nature of consensus forecasts, see Stephen K McNees, "Consensus Forecasts: Tyranny of the Majority?," *New England Economic Review*, Nov./Dec. 1987, pp.15-21.

[5] For this reason, it is difficult after the fact to explain why actual budget amounts differ from earlier projections. In part, it may have to do with economic forecast errors, but it may also be a result of changes in policy.

[6] For current information on the federal budget, see CRS Report RL33915, *The Budget for Fiscal Year 2008*, by D. Andrew Austin. For current information on economic conditions and the economic outlook, see CRS Report RL30329, *Current Economic Conditions and Selected Forecasts*, by Gail Makinen.

[7] A summary measure of error is an attempt to measure forecast accuracy in a single statistic.

[8] Individual forecast errors are calculated by subtracting the measured actual historical value from the one that was forecast.

The third measure is "root mean squared error." It is calculated by taking the square root of the average of the squares of the errors. Squaring the errors avoids the problem of negative and positive errors offsetting each other. In addition, it places a larger weight on large errors. This measure helps to point out those forecasters who, when wrong, miss by a lot.[9]

Standard deviations for forecast errors are also useful here. Standard deviation is a measure of the dispersion of a set of numbers about their mean. Used here, it gives an estimate of the variation in individual errors. It helps to identify those errors that are significant, rather than just a matter of chance. If the mean error is substantially larger than the standard deviation, that could constitute evidence of bias in the forecast.

The Forecasting Record

The OMB, CBO, and Blue Chip forecasts made from 1982 through 2007 are compared here using each of the three summary measures of error. Measures of standard deviation are presented as well. In each case, the forecasts examined are those that were released early on in the year forecasted.[10]

For each of these forecasts, four variables are examined: growth in real gross national product (GNP) or gross domestic product (GDP),[11] the change in the consumer price index (CPI), the civilian unemployment rate, and the interest rate on three-month Treasury bills.[12]

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[9] To see this point, consider two forecasts for two time periods. The first forecast had errors of 2 and 2. The second forecast has errors of 0 and 4. In both cases, the mean error is 2, suggesting equal accuracy. The first forecast also has a root mean squared error of two. However, the root mean squared error of the second forecast is 2.8. If large errors are considered critical, then the first forecast might be considered superior.

[10] In both 1981 and 1989, with the change in presidential administrations, OMB released two forecasts. For 1981, the last forecast released by the Carter Administration was used. For 1989, the last forecast released by the Reagan Administration was used. The Blue Chip forecasts compared here were all published in January.

[11] In late 1991, the Bureau of Economic Analysis of the Commerce Department began emphasizing GDP as the summary measure of the level of economic activity in the United States. More information is in CRS Report 93-570, *Gross National Product or Gross Domestic Product: What Difference Does It Make?* For a copy of the report contact Brian W. Cashell (7-7816).

[12] At one time, the Administration forecast the total unemployment rate which is, on average, 0.1 percentage point below the civilian unemployment rate. To allow the comparison shown here to be consistent, some administration forecasts for the unemployment rate have been adjusted to reflect the actual difference between the total and civilian unemployment rates in each year. The administration forecast of the unemployment rate shown here is of the *civilian* unemployment rate. Further, interest rates, as forecast by the administration, are assumed to follow the rate of inflation. That is, when the inflation rate rises or falls in the projection, interest rates are assumed to rise and fall by equal

(continued...)

Actual and forecast values for these variables for each of the past 26 years are shown in **Tables 1** through **4**. Individual differences are calculated by subtracting the actual from the forecasted value. A negative difference means that a particular forecast turned out to be too low. A positive difference means that a particular forecast turned out to be too high.[13]

In any given year, and for any particular variable, one forecast may have proven superior to either of the other two. In cases where one forecaster's projection proved to be off by a substantial amount, the other two forecasts were also off by relatively large amounts. In other words, no one forecaster tended to make major errors more often than the others. To get a picture of the overall accuracy of these forecasts, the summary measures are more useful.

At the bottom of each table, summary measures of error are presented for each forecaster. These figures suggest that no one of the three forecasters examined here stands out as either substantially inferior or superior to the others.

All of the forecasters showed a slight tendency to underpredict the real growth rate, although OMB's average error was slightly less than either CBO or the Blue Chip consensus. Much of that apparent tendency is due to forecast errors between 1996 and 2000. In the second half of the 1990s, productivity growth accelerated and it took some time for many economists to adjust their forecasts to reflect the new faster trend rate of growth, causing them to err on the low side. The overall mean error figures are not large enough to be interpreted as evidence of bias in any of the three forecasts.[14] The other two summary measures of error in forecasts of real growth, mean absolute error, and root mean squared error suggest that the three forecasters did about equally well.

With respect to inflation, forecasts of the consumer price index (CPI) were compared. There are two CPIs — the consumer price index for urban wage earners and clerical workers (CPI-W) and the consumer price index for all urban consumers (CPI-U). Prior to 1992, OMB forecast the CPI-W because it is the index used to make cost of living adjustments to Social Security benefits. Since then, all three have forecast the CPI-U. All three forecasters tended to overestimate future inflation, although the errors were small and not statistically significant.

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[12] (...continued)
amounts.

[13] GNP and GDP data are subject to periodic revisions. In other words, the 'actual' data is subject to change, and so the apparent accuracy of forecasts is also subject to change. Actual data shown here are the latest estimates available as of January 31, 2008. Although this may be unfair since definitions and methodologies have changed in the actual data since the forecasts were made, it is at least equally unfair to the three forecasts.

[14] For the mean error estimate to lead to a conclusion of systematic bias in the forecasts it would have to be at least two standard deviations greater than, or less than, zero. In other words, the error cannot be considered to be statistically significant unless it is at least larger than the standard deviation which measures the overall variation in the error terms.

Table 1. Forecasts of Growth in Real GNP/GDP, 1982 - 2007

		OMB		CBO		Blue Chip	
	Actual[a]	Forecast	Difference	Forecast	Difference	Forecast	Difference
1982	-1.9	0.2	2.1	-0.1	1.8	0.3	2.2
1983	4.4	1.4	-3.0	2.1	-2.3	2.5	-1.9
1984	7.1	5.3	-1.8	5.4	-1.7	5.3	-1.8
1985	3.8	3.9	0.1	3.5	-0.3	3.3	-0.5
1986	3.2	3.4	0.2	3.2	0.0	3.0	-0.2
1987	3.3	3.1	-0.2	2.8	-0.5	2.4	-0.9
1988	4.2	2.9	-1.3	2.3	-1.9	2.2	-2.0
1989	3.5	3.2	-0.3	2.9	-0.6	2.7	-0.8
1990	2.0	2.4	0.4	1.7	-0.3	1.7	-0.3
1991	-0.3	-0.3	0.0	0.0	0.3	-0.1	0.2
1992	3.3	1.5	-1.8	1.6	-1.7	1.6	-1.7
1993	2.7	3.1	0.4	2.8	0.1	2.9	0.2
1994	4.0	3.1	-0.9	2.9	-1.1	3.0	-1.0
1995	2.5	2.8	0.3	3.1	0.6	3.1	0.6
1996	3.7	2.2	-1.5	2.0	-1.7	2.2	-1.5
1997	4.5	2.2	-2.3	2.3	-2.2	2.3	-2.2
1998	4.2	2.4	-1.8	2.7	-1.5	2.5	-1.7
1999	4.5	2.4	-2.1	2.3	-2.2	2.4	-2.1
2000	3.7	3.3	-0.4	3.3	-0.4	3.6	-0.1
2001	0.8	2.4	1.6	2.4	1.6	2.6	1.8
2002	1.6	0.7	-0.9	0.8	-0.8	1.0	-0.6
2003	2.5	2.9	0.4	2.5	0.0	2.8	0.3
2004	3.6	4.4	0.8	4.8	1.2	4.6	1.0
2005	3.1	3.6	0.5	3.8	0.7	3.6	0.5
2006	2.9	3.4	0.5	3.6	0.7	3.4	0.5
2007	2.2	2.7	0.5	2.3	0.1	2.4	0.2
Summary measures of error							
Mean error			-0.40		-0.47		-0.45
Mean absolute error			1.00		1.01		1.03
Root mean squared error			1.29		1.26		1.26
Standard deviation			1.22		1.17		1.18

Sources: Department of Commerce, Bureau of Economic Analysis; Congressional Budget Office; Office of Management and Budget; Blue Chip Economic Indicators.

a. Forecasts are of GNP prior to 1992 and of GDP in 1992 and from then on.

Table 2. Forecasts of Consumer Price Inflation, 1982-2007

	Actual		OMB[a]		CBO		Blue Chip	
	CPI-W	CPI-U	Forecast	Difference	Forecast	Difference	Forecast	Difference
1982	6.0	6.2	7.3	1.3	7.5	1.3	7.8	1.6
1983	3.0	3.2	4.9	1.9	3.8	0.6	5.0	1.8
1984	3.5	4.3	4.4	0.9	4.5	0.2	5.0	0.7
1985	3.5	3.6	4.1	0.6	3.8	0.2	4.2	0.6
1986	1.6	1.9	3.5	1.9	3.4	1.5	3.6	1.7
1987	3.6	3.6	3.0	-0.6	3.5	-0.1	3.2	-0.4
1988	4.0	4.1	4.3	0.3	4.5	0.4	4.2	0.1
1989	4.8	4.8	3.8	-1.0	4.9	0.1	4.7	-0.1
1990	5.2	5.4	3.9	-1.3	4.0	-1.4	4.2	-1.2
1991	4.1	4.2	5.2	1.1	4.9	0.7	4.8	0.6
1992	2.9	3.0	3.0	0.0	3.3	0.3	3.3	0.3
1993	2.8	3.0	3.1	0.1	3.0	0.0	3.1	0.1
1994	2.5	2.6	2.8	0.2	2.7	0.1	2.8	0.2
1995	2.9	2.8	3.1	0.3	3.1	0.3	3.3	0.5
1996	2.9	3.0	2.8	-0.2	2.8	-0.2	2.8	-0.2
1997	2.3	2.3	2.7	0.4	2.9	0.6	2.9	0.6
1998	1.3	1.6	2.1	0.5	2.2	0.6	2.2	0.6
1999	2.2	2.2	2.2	0.0	2.5	0.3	2.0	-0.2
2000	3.5	3.4	2.6	-0.8	2.5	-0.9	2.5	-0.9
2001	2.7	2.8	2.7	-0.1	2.8	0.0	2.6	-0.2
2002	1.4	1.6	1.8	0.2	1.8	0.2	1.7	0.1
2003	2.2	2.3	2.2	-0.1	2.3	0.0	2.2	-0.1
2004	2.6	2.7	1.4	-1.3	1.6	-1.1	1.7	-1.0
2005	3.5	3.4	2.4	-1.0	2.4	-1.0	2.5	-0.9
2006	3.2	3.2	3.4	0.2	3.4	0.2	2.9	-0.3
2007	2.9	2.8	2.1	-0.7	1.9	-0.9	2.0	-0.8
Summary measures of error								
Mean error				0.11		0.08		0.12
Mean absolute error				0.65		0.51		0.61
Root mean squared error				0.85		0.68		0.79
Standard deviation				0.85		0.67		0.78

Sources: Department of Labor, Bureau of Labor Statistics; Congressional Budget Office; Office of Management and Budget; Blue Chip Economic Indicators.

a. OMB forecast the CPI-W prior to 1992 and the CPI-U in 1992 and from then on.

Table 3. Forecasts of the Unemployment Rate, 1982-2007

		OMB[a]		CBO		Blue Chip	
	Actual	Forecast	Difference	Forecast	Difference	Forecast	Difference
1982	9.7	8.9	-0.8	8.9	-0.8	8.6	-1.1
1983	9.6	10.9	1.3	10.6	1.0	10.3	0.7
1984	7.5	7.9	0.4	7.8	0.3	8.0	0.5
1985	7.2	7.1	-0.1	7.1	-0.1	7.2	0.0
1986	7.0	6.8	-0.2	6.7	-0.3	7.0	0.0
1987	6.2	6.8	0.6	6.6	0.4	7.0	0.8
1988	5.5	5.9	0.4	6.2	0.7	6.2	0.7
1989	5.3	5.3	0.0	5.5	0.2	5.4	0.1
1990	5.6	5.4	-0.2	5.6	0.0	5.6	0.0
1991	6.8	6.8	0.0	6.8	0.0	6.5	-0.3
1992	7.5	6.9	-0.6	6.9	-0.6	6.8	-0.7
1993	6.9	7.1	0.2	7.1	0.2	7.0	0.1
1994	6.1	6.5	0.4	6.4	0.3	6.4	0.3
1995	5.6	5.8	0.2	5.5	-0.1	5.6	0.0
1996	5.4	5.7	0.3	5.8	0.4	5.8	0.4
1997	4.9	5.3	0.4	5.3	0.4	5.4	0.5
1998	4.5	4.9	0.4	4.8	0.3	4.8	0.3
1999	4.2	4.8	0.6	4.6	0.4	4.7	0.5
2000	4.0	4.2	0.2	4.1	0.1	4.1	0.1
2001	4.7	4.4	-0.3	4.4	-0.3	4.4	-0.3
2002	5.8	5.9	0.1	6.1	0.3	6.1	0.3
2003	6.0	5.7	-0.3	5.9	-0.1	5.9	-0.1
2004	5.5	5.6	0.1	5.8	0.3	5.7	0.2
2005	5.1	5.3	0.2	5.2	0.1	5.3	0.2
2006	4.6	5.1	0.5	5.1	0.5	4.9	0.3
2007	4.6	4.6	0.0	4.7	0.1	4.8	0.2
Summary measures of error							
Mean error			0.15		0.14		0.14
Mean absolute error			0.34		0.32		0.33
Root mean squared error			0.44		0.40		0.44
Standard deviation			0.41		0.37		0.41

Sources: Department of Labor, Bureau of Labor Statistics; Congressional Budget Office; Office of Management and Budget; Blue Chip Economic Indicators.

a. Prior to 1992, OMB forecast the total unemployment rate. The OMB forecasts shown here have been adjusted to account for the difference between the total and civilian unemployment rates.

Table 4. Forecasts of the 91-day Treasury Bill Rate, 1982 - 2007

		OMB		CBO		Blue Chip	
	Actual	Forecast	Difference	Forecast	Difference	Forecast	Difference
1982	10.6	11.7	1.1	12.0	1.4	10.8	0.2
1983	8.6	8.0	-0.6	6.8	-1.8	7.7	-0.9
1984	9.5	8.5	-1.0	8.9	-0.6	8.8	-0.7
1985	7.5	8.1	0.6	8.3	0.8	8.6	1.1
1986	6.0	7.3	1.3	6.8	0.8	7.1	1.1
1987	5.8	6.8	1.0	6.6	0.8	5.4	-0.4
1988	6.7	5.3	-1.4	6.2	-0.5	6.0	-0.7
1989	8.1	6.3	-1.8	7.9	-0.2	7.8	-0.3
1990	7.5	6.7	-0.8	6.9	-0.6	7.1	-0.4
1991	5.4	6.4	1.0	6.6	1.2	6.3	0.9
1992	3.4	4.1	0.7	4.4	1.0	4.2	0.8
1993	3.0	3.7	0.7	3.1	0.1	3.5	0.5
1994	4.3	3.4	-0.9	3.5	-0.8	3.4	-0.9
1995	5.5	5.9	0.4	6.2	0.7	6.2	0.7
1996	5.0	4.9	-0.1	4.9	-0.1	5.0	0.0
1997	5.1	5.0	-0.1	5.0	-0.1	5.2	0.1
1998	4.8	5.0	0.2	5.3	0.5	5.1	0.3
1999	4.6	4.2	-0.4	4.5	-0.1	4.3	-0.3
2000	5.8	5.2	-0.6	5.4	-0.4	5.6	-0.2
2001	3.4	5.3	1.9	4.8	1.4	5.4	2.0
2002	1.6	2.2	0.6	2.2	0.6	2.1	0.5
2003	1.0	1.6	0.6	1.4	0.4	1.6	0.6
2004	1.4	1.3	-0.1	1.3	-0.1	1.3	-0.1
2005	3.2	2.7	-0.5	2.8	-0.4	3.0	-0.2
2006	4.7	4.2	-0.5	4.5	-0.2	4.5	-0.2
2007	4.4	4.7	0.3	4.8	0.4	4.9	0.5
Summary measures of error							
Mean error			0.06		0.16		0.15
Mean absolute error			0.74		0.62		0.56
Root mean squared error			0.88		0.76		0.70
Standard deviation			0.87		0.74		0.69

Sources: Board of Governors of the Federal Reserve System; Congressional Budget Office; Office of Management and Budget; Blue Chip Economic Indicators.

The summary measures of error suggest a virtual tie with regard to forecasting the unemployment rate. There was no indication of a statistically significant bias in these forecasts.

The OMB forecasts of short-term interest rates seem to have been slightly better than the other two over the period examined here, but the differences in the measures of forecast error were not significantly different. Neither was there any statistically significant tendency to either over- or underpredict interest rates.

Budget Implications of Economic Forecasts

Economic forecasts have a substantial effect on the budget outlook. For example, the faster the economic growth rate is forecast to be, the higher projections of revenues will be and the lower projections of outlays will be, resulting in a larger budget surplus projection or a smaller budget deficit projection. Each year, CBO publishes estimates that go out 10 years of the effect that alternative economic forecasts would have on their projections of revenues, outlays, and the budget surplus (or deficit).

Economic Growth

Changes in forecasts of economic growth have a greater effect on revenues than they do on outlays. With respect to revenues, faster economic growth means higher incomes and higher tax payments. Outlays are also reduced, because borrowing needs are reduced, the debt grows less rapidly, and interest payments are smaller. Slower economic growth, on the other hand, would tend to reduce the projected path of revenues, increase projected outlays and the projected surplus would tend to be smaller, or the deficit would tend to be larger.

Table 5 presents the estimated effects of changes in assumptions about economic growth on projections of revenues, outlays, and the surplus through 2018. CBO estimates the effect of 0.1% *slower* growth in real GDP, and the change is assumed to persist over the entire interval. In other words, the change is not considered to be cyclical but rather is assumed to be a change in the long-run trend rate of growth of the economy. Because the change in growth is not a cyclical phenomenon but is related to productivity, employment levels are assumed to remain unchanged. According to these estimates, for each 0.1% drop in economic growth between 2008 and 2018, the cumulative budget surplus would fall by $298 billion. Or, in the case of deficits, the cumulative deficit would rise by $298 billion.

Table 5. Estimated Effects on the Projected Budget of 0.1% Slower Rate of Economic Growth
(all figures in billions of dollars)

Fiscal Year	Change in Revenues	Change in Outlays	Net Change - Surplus
2008	-1	a	-1
2009	-4	a	-4
2010	-7	1	-8
2011	-11	1	-12
2012	-16	2	-18
2013	-21	3	-23
2014	-26	4	-30
2015	-32	6	-38
2016	-38	8	-46
2017	-45	10	-55
2018	-51	12	-63

Source: Congressional Budget Office.

a. Between -$500 million and $500 million.

Interest Rates

Interest rate forecasts also have a substantial effect on the budget outlook. Higher interest rates raise the cost of financing the outstanding debt. At first, the higher rates apply mostly to new debt, but as older securities mature and are refinanced the higher rates apply to more and more of the total outstanding federal debt. At the same time, higher interest rates increase the incomes of holders of federal securities, raising their taxes and federal revenues as well. **Table 6** presents the estimated effects of changes in assumptions about interest rates on projections of revenues, outlays, and the surplus (deficit) through 2018.

The long run effect on budget projections of assuming higher interest rates is much greater for outlays than it is for revenues. Thus, higher interest rates have the direct effect of reducing projected surpluses (increasing deficits). Because of the smaller surpluses (larger deficits), the outstanding debt grows more rapidly magnifying the effect of higher borrowing costs. The cumulative effect of ten years of higher interest rates is estimated to reduce the surpluses (increase the deficits) by $407 billion.

Table 6. Estimated Effect on Budget Projections of 1% Higher Interest Rates
(all figures in billions of dollars)

Fiscal Year	Change in Revenues	Change in Outlays	Net Change - Surplus
2008	2	10	-8
2009	4	24	-19
2010	6	33	-28
2011	7	40	-33
2012	8	45	-37
2013	8	49	-41
2014	9	52	-43
2015	9	55	-46
2016	10	58	-49
2017	10	61	-51
2018	11	63	-52

Source: Congressional Budget Office.

Conclusion

Budget projections are not possible without making some basic assumptions about the economic outlook. Projections of revenues require projections of incomes out of which taxes are paid. Projections of outlays depend on estimates of future inflation and interest rates. A wide range of economic variables can affect both.

With respect to the accuracy of past economic forecasts, no one forecaster examined here appeared to be significantly more reliable or more accurate than the others. Neither does there appear to be any significant pattern of excessive optimism or pessimism in any of the forecasts. It appears that, to the extent that the official forecasts have missed the mark, it is simply a reflection of the state of the art of economic forecasting rather than an indication of bias.

Forecasts of future economic performance will undoubtedly continue to err. Revenue projections, for example, will turn out to have been too high one year or too low in another. A surplus may turn out to be higher or lower than was expected because of an imperfect economic forecast. With respect to forecasts of real economic growth, there has been a slight tendency for forecasts to be low, especially in recent years. Inflation forecasts, meanwhile, have tended to be a little high. In neither case, however, was the error significant. In the case of forecasts of the unemployment rate and short-term interest rates, the evidence suggests that forecast errors tended to balance out. Although there is no basis to assume that biased forecasts will lead to unrealistic budget projections, small deviations from the underlying economic forecast can have significant effects on future budgets